

**What is claimed is:**

1. An optical disk controller, which performs a control associated with record of data on an optical disk and reproduction of data recorded on the optical disk, comprising:

5       a first memory for storing a first software to perform a first processing;

      a second memory for storing a second software to perform a second processing; and

      processing means for reading the first and second  
10      software from the first memory and the second memory to independently perform the first processing and the second processing each other,

      the first processing includes a seek control processing of performing a seek control of the optical  
15      disk, and a transmission processing of transmitting information indicating the storage location of data recorded on the optical disk, which includes defect management information indicating an alternative storage location of a defective block, to the second software, and

20      the second processing includes a detection processing of detecting the storage location of data recorded on the optical disk based on the storage location information, and a notification processing of notifying a request for

seeking the storage location, in which data detected by the detection process is recorded on the optical disk, to the first software.

5    2.    The optical disk controller according to Claim 1, further comprising:

        a plurality of the first software; and  
        a plurality of the first memory.

10    3.    The optical disk controller according to claim 1, wherein a speed of which the processing means reads the first software from the first memory is lower than a speed of which the processing means reads the second software from the second memory.

15    4.    The optical disk controller according to claim 1, wherein the first memory is flash memory, and the second memory is ROM.

20    5.    The optical disk controller according to claim 1, wherein the first program is firmware and the second program is a  $\mu$  code.

25    6.    The optical disk controller according to claim 1, wherein the second processing includes a defect detection processing of detecting that a block of the storage

location detected by the detection processing is a defective block, and judgment processing of judging whether an alternative storage location of data to be read is two or more consecutive blocks based on the defect management  
5 information when the block of the storage location of detected by the detection processing is the defective block,

wherein two or more consecutive blocks of data read as a result of a seek for a first block of the alternative  
10 storage location are stored in a buffer memory to accommodate a second and subsequent blocks of the alternative storage location when the judgment processing judges that the alternative storage location of the data to be read is two or more consecutive blocks.

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7. The optical disk controller according to claim 1, wherein the first processing has information extraction processing of extracting only information required for reproduction of the data stored on the optical disk and  
20 organizing the information into a defect management information to be transmitted to the second software.

8. The optical disk controller according to claim1, wherein the defect management information is organized in  
25 tabular form.

9. The optical disk controller according to claim 7, wherein data storage locations of the defect management information are arranged in an ascending order.

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10. The optical disk controller according to claim 7, wherein the defect management information includes an identification code which indicates an end of a table.

10 11. The optical disk controller according to claim 1, wherein the defect management information is in conformity with Mt. Rainier standards of optical disks.

12. An optical disk controller, which performs a control  
15 associated with record of data on an optical disk and reproduction of data recorded on the optical disk, comprising:

a first memory for storing a first software to perform a first processing;

20 a second memory for storing a second software to perform a second processing; and

processing means for reading the first and second software from the first memory and the second memory to independently perform the first processing and the second  
25 processing each other,

the first processing includes a seek controlling process of performing a seek control of the optical disk, and

the second processing includes a detection processing  
5 of detecting that data stored in a buffer memory temporarily storing data which the processing means reads from the optical disk is data storage location of last block of a first data area, notification processing of notifying a request for a seek for first block of a second  
10 data area following last block of the first data area to the first software, and connection processing of connecting the last block of the first data area and the first block of the second data area which are logically continuous.

15 13. The optical disk controller according to claim 12, wherein a speed of which the processing means reads the first software from the first memory is lower than a speed of which the processing means reads the second software from the second memory.

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14. The optical disk controller according to claim 12, wherein the first memory is flash memory, and the second memory is ROM.

25 15. The optical disk controller according to claim 12,

wherein the first program is firmware and the second program is a  $\mu$ code.

16. The optical disk controller according to claim 12,  
5 wherein the defect management information is in conformity with Mt. Rainier standards of optical disks.

17. A method of controlling an optical disk apparatus for recording data on an optical disk and reproducing data  
10 recorded on the optical disk which incorporates an optical disk controller having a first memory for storing a first software to perform a first processing, a second memory for storing a second software to perform a second processing, and processing means for independently performing the first  
15 processing and the second processing each other, comprising the steps of:

transmitting defect management information indicating alternative storage location of defective block of data recorded on the optical disk to a memory storing the second  
20 software by the first software;

detecting that the a block of a storage location of data to be read is a defective block based on the defect management information, when the second software detects the storage location of data to be read in response to a  
25 data transfer request command, by the second software;

requesting the first software of a seek for the alternative storage location by the second software based on the defect management information, when detecting that the storage location of the data to be read is a defective  
5 block, by the second software;

performing a seek for the alternative storage location by the first software in response to the seek request;

requesting the second software to store data  
10 reproduced from the optical disk in a buffer memory by the first software; and

storing the reproduced data in the buffer memory by the second software.

15 18. The method of controlling an optical disk apparatus according to claim 17, further comprising the step of:

judging that the alternative storage location of the data to be read is two or more consecutive blocks, when the block of the storage location of the data to be read is  
20 detected as the defective block, by the second software; and

storing two or more consecutive blocks of data read as a result of the seek for the first block of the alternative storage location in the buffer memory to  
25 accommodate the second and subsequent blocks of the

alternative storage location if it is judged that the alternative storage location is two or more consecutive blocks.

5 19. A method of controlling an optical disk apparatus for recording data on an optical disk and reproducing data recorded on the optical disk which incorporates an optical disk controller having a first memory for storing a first software to perform a first processing, a second memory for  
10 storing a second software to perform a second processing, and processing means for independently performing the first processing and the second processing each other, comprising the steps of:

detecting that data stored in a buffer memory is a  
15 last address of a first data area, when the second software reads data recorded on the optical disk in response to a data transfer request command, by the second software;

calculating a first address of the second data area next to the first data area, when the second software  
20 detects that the data stored in the buffer memory is the last address of the first data area, by the second software;

requesting the first software of a seek for the first address of the second data area calculated by the second  
25 program;

performing a seek for an alternative storage location  
by the first software in response to the seek request;

requesting the second software to store data  
reproduced from the optical disk in the buffer memory by  
5 the first software;

storing the reproduced data in the buffer memory by  
the second software; and

connecting data in the last address of the first data  
area that has already been stored in the buffer memory and  
10 data in the first address of the second data area by the  
second program.

18. An optical disk apparatus comprising an optical disk  
controller according to claim 1.

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19. An optical disk apparatus comprising an optical disk  
controller according to claim 11.